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GENERAL NOTES.

Members and friends of the Society are invited to aid the Committee on Publication in carrying out the work of this department. Communications of general interest will be gladly received, and may be sent to SIDNEY D. TOWNLEY, 2023 Bancroft Way, Berkeley, California.

MR. FRANK B. LITTELL has been appointed Professor of Mathematics in the United States Navy.

The Board of Visitors of the United States Naval Observatory has made a report to Secretary LONG, and the following extracts are taken from newspaper accounts of the report:—

"It is recommended that no Astronomical Director be appointed at present, as a dual headship has been found to work unsatisfactorily, and under the existing law the appointment of an astronomer as sole director of the observatory — which the board considers the proper solution of the question — is impracticable. Vacancies should not be filled among assistant astronomers nor among professors of mathematics in the navy without examination for each vacancy occurring. No distinction should be made between employees of the observatory and other applicants. The responsibilities of the positions of assistant astronomer and professor of mathematics are distinctly different from those of a computer, although much of the required experience may properly be maintained in connection with the latter position and be credited in the examinations for the higher positions. As far as is consistent with the routine needs of the institution, the duties of the computers should be so arranged as to encourage them to prepare for advancement within the observatory itself. In no case should appointments be made to the observatory merely by transfer from other bureaus or offices in the service, nor should appointments be made, even temporarily, without competitive examinations.

"As every other prominent observatory is under the direction of an astronomer, it is our judgment that the law limiting the superintendency to a line officer of the navy should be changed so as to provide that the official head of the observatory — perhaps styled simply 'The Director' — should be an eminent astronomer, appointed by the President, by and with the advice and consent of the Senate, holding this place by a tenure at least as permanent as that of the Superintendent of the Coast Survey or the head of the Geological Survey, and not merely by a detail of two or three years' duration. Only in this way can there be a continuous and effective policy of administration which will assure astronomical work of a high order. In rank, salary, privilege, and prestige he should be superior to any officer on the ground.

"The limitation in the selection of assistants should also be removed, and the assistant once appointed should be secure against detachment or removal, except by the action, for cause, of the Director.

"The institution should be related to the Navy Department, if continued under its control, in some such way as the Royal Observatory at Greenwich is related to the British Admiralty. It should be put under

the control of the Secretary direct, and not through a bureau as at present.”

Mr. J. L. E. DREYER, of Armagh, Ireland, has called our attention to an error in these *Publications*, No. 79, page 130, concerning the brightness of TYCHO’s star when first seen by him. By way of correction we reprint a letter of Mr. DREYER’S, published in the April number of *The Observatory*, page 166:—

“In the article on ‘Temporary Stars,’ in your March number (p. 126), you say that ‘TYCHO’s star, in 1572, was first seen as bright as *Jupiter*, and quickly increased, so that it became equal to *Venus*.’ Allow me to point out that the star, when first seen by TYCHO, was brighter than *Jupiter* at minimum distance, and was as nearly as possible equal to *Venus* at its maximum brightness. The few observers who saw it some days earlier than TYCHO did not say anything about its magnitude.

“The erroneous statement that the star was at first only equal to *Jupiter* appears in a few modern books (even in YOUNG’s ‘General Astronomy’), and has probably originally arisen through careless reading of TYCHO’s own words. As some hypothesis or theory about the nature of these bodies may some day be founded on the alleged slow increase of TYCHO’s star, it may be well to point out the mistake. I have given a full review of the literature on this star in my ‘Tycho Brahe,’ chapters 3 and 8.

“Whether really ‘TYCHO’s star remains in the heavens, a shadow of its former greatness,’ is somewhat uncertain. No doubt there is a small star within a minute of arc of the most probable place of the *Nova*, but it is obvious that we cannot be sure of the identity of the two.”

Mr. ANDREW GREIG has kindly sent the following account from the *Cape Argus*, of the presentation of a new telescope to the Royal Observatory, Cape of Good Hope:—

“Few events have ever taken place in the southern hemisphere of greater direct scientific significance than that which was the occasion on the 26th of September last, of the delightful function at the Royal Observatory. This was the unveiling by his Excellency the Governor of the inscription-stone of the new Victoria telescope, which has been presented to the Observatory by Mr. FRANK McCLEAN, LL. D., F. R. S. The large telescope is mounted in a circular room surmounted by a movable dome. This dome is in sliding sections, thus admitting of the telescope being pointed in a few seconds to any quarter of the sky; and nothing has been left undone to make the building and telescope a worthy memorial to her late Majesty. Suitable smaller rooms are provided in the building for the various operations necessary in connection with the work of examining, comparing, and photographing the spectra of luminous celestial bodies. The adjuncts and fittings throughout the whole building are of the most approved type, and are thoroughly in accordance with the munificence of their donor. The principal speech

was made by Sir DAVID GILL, H. M. Astronomer, who delivered an interesting address on the old and the new astronomy, and narrated the circumstances under which Mr. McCLEAN had presented 'The Victoria Telescope' to the Cape Observatory.'

Nova Persei.—Since the middle of July the brightness of the new star in *Perseus* has remained constant at about $6\frac{1}{2}$ magnitude. Astronomers are still interested in the wonderful object, and the observations and investigations of the last few months have brought out some interesting facts.

Light Curve.—Under date of June 5th, Rev. Father HAGEN, of the Georgetown College Observatory, published a discussion of all the observations of brightness made between February 22d and May 1st. The observations were divided into various classes and plotted on a large scale. The resulting light-curve confirms in general that deduced by the writer from his own observations and published in number 79 of these *Publications*. The conclusions reached by HAGEN are as follows:—

"As to the *shape* of the light-curve, besides the general decline of magnitude from the first to the sixth, there are three minima,—March 19th, 22d, 25th,—which seem to be established beyond doubt, while later ones for March 28th, April 2d or 3d, 6th or 7th, and 10th or 11th, are indicated with great probability. Four more minima seem to have occurred until the beginning of May, which, however, could not be located exactly on account of the scarcity of the available observations. Previous to March 19th the minimum of the 16th seems to be real, and perhaps four or five more, preceding each other in periods of a little over two days.

"The apparent small oscillations from March 3d backward to February 24th may be the effect of systematic differences between the observations. The period of oscillation is about one day, and the same observers are generally represented in the same phase. Should additional publications prove them to be real, then the general character of this light-curve would exhibit a *harmonic change of brightness of the Nova with a period gradually lengthening from one day to four and a half or five days.*"

Dr. WILSON, of the Goodsell Observatory, has taken up also the investigation of the light-curve of *Nova Persei*, and two installments of a continued series of articles on the subject have appeared in the October and November numbers of *Popular Astronomy*. All the published observations have been collected, classified, discussed, and plotted, and the resulting curve, covering the period from time of discovery to April 25th, has been published as a frontispiece in the November number. We give below a tabulation of the maxima and minima as read from the three curves mentioned:—

MAXIMA.			MINIMA.		
HAGEN.	WILSON.	TOWNLEY.	HAGEN.	WILSON.	TOWNLEY.
Mar. 12.4 14.7 18.0 20.5 23.6 27.0 31.4 Apr. 4.8 9.0 [12.5] 18.4 23.3 27.7	Mar. 12.5 14.8 18.1 20.7 23.0 27.0 31.3 Apr. 4.7 8.9 12.8 18.2 23.4 28.0	Mar. 14.5 [18.7] [23.4] 31.2 Apr. [4.8] 9.0 13.3 18.2 23.7	Mar. 13.4 16.3 19.3 22.3 25.5 27.0 Apr. 3.0 7.0 10.8 16.0 21.3 25.7	Mar. 13.5 16.4 19.4 22.1 25.5 28.7 Apr. 3.2 7.2 11.3 16.4 21.3	Mar. 16.5 [20.9] 25.4 29.2 Apr. 2.7 6.9 [11.2] 15.7 20.9 26.2 30.5

The maximum of April 12th cannot be read accurately from HAGEN's chart. The values in brackets have few or no observations to support them.

The above tabulation shows conclusively that the period of the star lengthened during the latter part of March and during April. Subsequent observations show that the period continued to lengthen with a decreasing range, until it finally died out about the middle of July. Since then the brightness has been practically constant at about $6\frac{1}{2}$ magnitude.

Spectrum.—The spectroscope has provided much interesting material. During the spring months the spectrum was quite similar to that of *Nova Aurigæ* during the early months of its appearance. Bright and dark lines were both present and many changes have been recorded. That these changes in the spectrum were connected with the observed variations in brightness seem very probable, but most of the spectroscopic observations are too scattering to be of much use in comparing the changes with those of the star's brightness.

E. VON GOTTHARD, however, has published in *Astronomische Nachrichten*, No. 3713, under the title of "Periodische Veränderungen in Spectrum der *Nova Persei*," some results of particular interest. His observations yielded two types of spectra, one in which the continuous spectrum was very strong, and the other in which the continuous spectrum was weak and several bright lines were very prominent. He calls this latter a "gas spectrum." The first type of spectrum was seen very clearly on March 31st, April 8th, 18th, 27th, and the second type on April 6th, 11th, 21st, 22d, 25th, 29th. A comparison of these dates with those of the table above show that the dates of the first type

of spectrum coincide with the maxima of brightness and those of the second type with the minima. I wish to acknowledge that Mr. RALPH H. CURTISS, Fellow of the Lick Observatory, first called my attention to von GOTHARD's article and the coincidences noted above.

During June the spectrum changed gradually to that of a planetary nebula.

Motion in the line of sight.—The observations of CAMPBELL and WRIGHT at the Lick Observatory, show that the *Nova* has a small and practically constant motion in the line of sight. There is no indication of orbital motion.

Photographs.—Negatives taken by Dr. Wolf at Heidelberg, Mr. RITCHIEY, of the Yerkes Observatory, and Mr. PERRINE, of the Lick Observatory, show the presence of a faint nebulosity in the neighborhood of the new star. According to reports from the two observatories mentioned above, most remarkable changes have taken place in the nebulosity during the last few weeks.

The Lick Observatory reports a southeasterly motion of the nebula amounting to one minute of arc in six weeks. If we assume that the nebula is at the distance of a star, the parallax of which is $0''.25$, then the velocity of the nebula in a direction perpendicular to the line of sight amounts to the astounding amount of 7,000 miles per second. The body cannot belong to the solar system, for at the time of the year that these photographs were taken its motion should have been retrograde — westerly instead of easterly.

Theories.—In a note to an article, “The Light-Curve of *Nova Persei*,” printed in number 79 of these *Publications*, I suggested a modification of the tide theory as a possible explanation of the phenomena connected with this star. The spectroscopic observations of von GOTHARD are easily explained under this theory. As the disturbing body approaches, the enshrouding vapor could be pulled to one side, which would give a maximum of light and a strong continuous spectrum. As the vapors moved into the line of sight of the observer a minimum of brightness would result and the continuous spectrum would be largely reduced, and the bright-line spectrum of the incandescent vapors would form the most prominent feature.

It is impossible to state just what the tidal effects upon the vapors would be; but if we assume that the effect would be very

small, the observed phenomena could still be explained under this theory if the height of the wave in the liquid were comparable with the depth of the denser enshrouding vapors. Under such conditions the maximum would be sharp and well defined, while the minimum would be longer and poorly defined. The plotted light-curves show a decided tendency of this nature. This theory is in its main features the same as that suggested by Dr. HUGGINS several years ago. I had expected ere this to subject the theory to a more rigid analysis, but a pressure of other duties has prevented me from doing so. I hope soon, though, to discuss more critically several of the more important theories that have been advanced for the explanation of temporary stars. The most obvious objection to the one mentioned above is that it does not satisfactorily explain the change of the spectrum to that of a planetary nebula. The presence of a nebula about the star would seem to give strength to SEELIGER's theory.

Professor T. C. CHAMBERLIN, of the University of Chicago, published in the July number of the *Astrophysical Journal*, under the title "On a Possible Function of Diruptive Approach in the Formation of Meteorites, Comets, and Nebulæ," some interesting investigations along lines similar to those discussed above.

S. D. T.
